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ABSTRACT

A resource and activity guide for the developmentally disabled that focuses on fine motor skills is presented. Attention is directed to fine motor behavior during the first year (vision, grasp, and release and reaching), and behaviors developing at 13 months (the interaction of fine motor and cognitive skills). An introductory section considers the behaviors that occur in the first year of development. In following a developmental approach, the guide identifies goals and objectives, and explains the relevance of the objectives to overall growth and development. Activities are suggested that will describe how to increase the student's fine motor skills. The activities are listed separately for primary age (birth to 8 years), intermediate age (9-15 years), and adult (16-26 years). Developmental levels ranging from 0-6 months to 49-60 months are covered. Language correlates of the activities and ideas for group homes and family environments are also presented. The following goal areas are included: reaching for and grasping an object; using the skills of reach, grasp, and release as a way of relating to objects; using a pincer grip to manipulate objects; using a fisted grasp to manipulate objects; using two-hand coordination to manipulate objects; using refined, upper extremity movements to manipulate objects; improving eye-hand coordination; and improving finger dexterity. Appended is a list of commercial materials appropriate for children at each of the 8 developmental levels, a list of 5 fine motor programs, and a list of 13 assessment instruments. (SEW)

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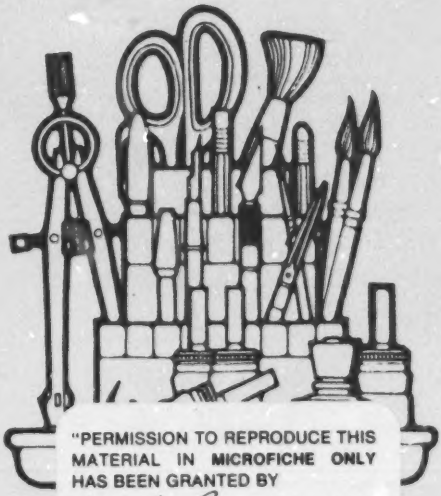
molehills out of mountains



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ANY WAY YOU CUT IT!

a resource and activity guide for the developmentally disabled

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The teacher and the developmentally disabled student who, together, take a complex learning task and attain mastery of it have surely succeeded in making a molehill out of a mountain.

When writing an activity guide on fine motor skills, one certainly cannot overlook the vital contributions made by occupational therapists. Consultation with an occupational therapists is imperative when the developmentally delayed student also has a motoric impairment. We would like to thank Pam Facchini and Sammie Vanenburg, O.T.R's employed by the Wayne County Intermediate School District for their support and encouragement in writing this activity booklet.

Highly recommended by these occupational therapists are two books which contain a wealth of information for teachers who program for the motorically involved student who developmentally functions between birth through five years. Handling the Young Cerebral Palsied Child at Home by Nancie Finnie (New York: E.P Dutton, 1968) is a how to manual written for parents. It describes activities for all areas of Activities of Daily Living (ADL) skills, provides a list of toys, supplies and equipment, and techniques for positioning. Book III of the series Developmental Programming for Infants and Young Children by Sara Brown and Carol Donovan (Ann Arbor Press, Ann Arbor, Michigan, 1977) offers stimulation activities with adaptations for the motorically involved student.

Again, we thank these two professionals for their invaluable input.

FINE MOTOR DEVELOPMENT DURING THE FIRST TWELVE MONTHS

An analysis of fine motor behavior during the first year reveals three fundamental components: vision, grasp and release and reaching (Chandler 1979). These rudimentary behaviors are part of larger skills that will be described in later sections. The first two developmental levels of this issue of Molehills Out Of Mountains will divide fine motor behavior into these three categories. Tasks that involve the integration of fine motor and cognitive skills (ie. building a tower, completing a pegboard or formboard) will be addressed in the developmental level starting at thirteen months.

It is helpful to understand some of the trends in fine-motor development during this first year. Biological maturation is responsible for the fundamental development during this period (Cooper 1982). In her article "Your Baby's Hands", Julie Cooper looks at the development of manual dexterity through a Piagetian framework. One of the first steps in this process of the "sensorimotor stage" occurs as an infant adapts her reflexes to different experiences. She quotes Dr. Mary Ann Pulaski as stating that initially, the hand is something to be sucked, and if something is grasped, it is also sucked. The combination of behaviors takes place without the baby seeing what she is grasping.

At about two months of age, object-oriented movements are made by babies as illustrated by swiping movements (White, et al 1964, Cooper 1982). Around three to four months, the baby can finally bring hands to midline and cross over (Cooper 1982, White, et al 1964). It is during this time that one of the milestones of the sensorimotor period occurs. This development of prehension, or visually directed reaching, involves the coordination of the visual motor system, namely the eyes, arm, and hand (White, et al 1964). The beginning of prehension indicate the gradual discovery of the self as seperate from the world (Cooper 1982).

Looking at the fine motor development involved in reaching and grasping reveals that it proceeds from a proximal (closest to trunk) to distal (farthest from trunk) direction. Reaching is an example of movement at the proximal joints and grasping is an example of movement at the distal joints, with reaching preceding grasping (Chandler 1979).

Another sequence which contributes to fine motor skill is a movement between the elbow and wrist involving pronation of forearm to supination. The illustration below from the book The Developmental Resource, Vol.I, shows the process of pronation to supination. Scooping with a spoon and bringing it to the mouth is an example of this process (Chandler 1979).

A. An infant holds arm in pronation to pick up a small object.

B. Youngster supinates arm to bring food to mouth.

(Reprinted with permission from Grune and Stratton: Marilyn Cohen and Pamela Gross, The Developmental Resource Volume I, 1979)

The illustrations of commonly seen hand grasps will give a quick description of how hand function develops.

(Reprinted with permission from Grune and Stratton: Marilyn Cohen and Pamela Gross, The Developmental Resource, Volume I; 1979)

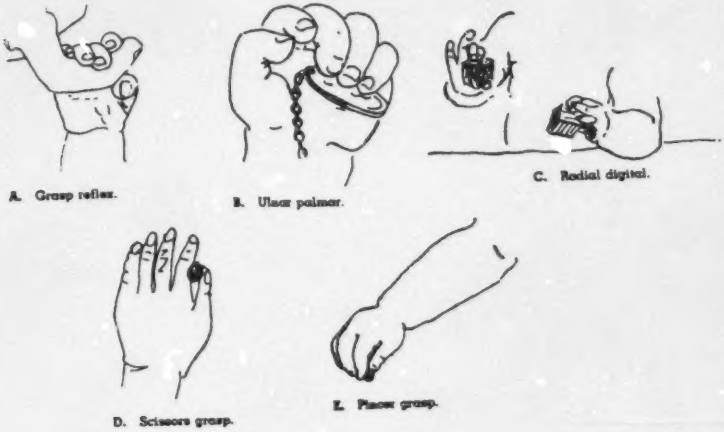

FIGURE 5-11. COMMONLY SEEN HAND GRASPS.

Because reflexes appearing in the listings are natural behavioral manifestations, it has been stated by some professionals that the development of reflexes should NOT be the goal of program (Chandler 1979). However, experts generally agree that experiences provided in the environment play an essential part in this process (Cooper 1982). Therefore, knowing the sequential behaviors that occur in this first year of development will enable teachers to provide appropriate educational experiences for the student. Occupational therapists will become an integral part of the team that programs for the student exhibiting immature and inappropriate reflexes and should be consulted before programming begins.

Chandler, Lynette Gross and Fine Motor Development The Developmental Resource, Volume I, pp.119-151, Grune and Stratton, New York, 1979

Cooper, Julie Your Baby's Hands, Parents, April 1982 pp. 61-65

White, B.L, Castle P., and Held, R. Observation on the Development of Visually Directed Reaching, Child Development, 1964, 35, 349-364

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 0-6 months

GOAL: The student will reach for and grasp an object.

OBJECTIVE(S): This listing consists of sequential behaviors that emerge in the fine motor component areas. These behaviors MAY be written as a student objective. The behaviors may also be used as guidelines for response levels to the various activities described at the different age levels.

VISION

1. The student will vertically follow an object/person with eyes. (1 month/Bayley)
2. The student gazes at object in his hand. (1 month/LAP)
3. The student fixates on an object for 5-10 seconds. (2 mo./White)
4. The student glances at object in his hand when in supine position. (2-4 months/White)
5. The student visually follows an object to the point of disappearance. (2-4 months/Uzgiris)
6. The student watches the movements of own hands. (4 mo./Gesell, Bayley)
7. The student looks at a noisely fallen object. (5-6 mo./Bayley)
8. The student attends to scribbling. (6 mo./Bayley)

REACHING

1. The student exhibits random arm movements. (1 month/Gesell)
2. The student exhibits swiping movements. (2 mo./White, Caplan)
3. The student reaches for object with both hands and often misses. (3 mo./Caplan)
4. The student shows visually directed reaching. (3-5 mo./Gesell, Halverson)
5. The student can grasp an object in 16.5 seconds. (4-5 mo./Halverson)
6. The student will close hand on a dangling ring. (4 mo./Bayley; Knobloch and Pasamanick)
7. The student will grasp only with the hand near by. (5 mo./Gesell)
8. The student will transfer object from hand to hand. (6 mo./Bayley)

GRASPING/RELEASING

1. The student exhibits a grasp reflex (palmer grasp). (1 mo./Caplan, Bayley)
2. The student will drop rattle/object immediately when placed in hand. (1 month/Gesell)
3. The student will hold an object 5-10 seconds before dropping. (2 months/Gesell)
4. The student will explore objects placed in hands. (3 mo./Caplan)
5. The student's hands are predominately open. (3-4 mo./Bayley, Gesell)
6. The student shows ulnar-palmer prehension (3-4 mo./Bayley)
7. The student's hands are open in anticipation of contact. (4 mo. Gesell, White, Bayley)
8. The student picks up cube. (5 mo./Bayley, Knobloch and Pasamanick)
9. The student will rake pellets with finger against palm. (6 mo./ Gesell and Armatruda)

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 0-6 months

RELEVANCE TO GROWTH AND DEVELOPMENT:

The emergence of these fine motor behaviors allow the student to explore the world and develop the skills that lead to manual dexterity. The following article by Julie Cooper titled "Your Baby's Hands" (Parents Magazine, April 1982) describes the importance of this first year of fine motor development.

YOUR BABY'S HANDS

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The tiny, beautifully formed hands of a newborn are much more than adorable. It is through his hands that a helpless infant is first actively able to explore his new world. And from watching the baby's first tentative gropings, researchers now know that reaching, grasping and manipulating things are key factors in healthy development.

Manual dexterity, however, takes years to develop. In fact, although the hands serve as vital antennae right from the start "a baby is capable of little to no purposeful hand function at birth" reports Dr. Arnold Gold, pediatric neurologist at the Columbia Presbyterian Hospital in New York City. Even through all the senses of a healthy newborn function to some degree at birth, he simply cannot complete the intricate hand motions that older children and adults take for granted.

This is because a great deal of neurological maturation and learning must occur before his level of sensory integration approximates ours. ("Sensory integration-according to a theory developed by Dr. Jean Ayres-is the process whereby the central nervous system sorts, assimilates and interprets sensory information in order to make adaptive motor responses in everyday life situations", explains Margie Becker-Lewin, occupational-therapy consultant at the Churchill school in New York City.)

Most of us never stop to analyze it, Becker-Lewin adds, but each deliberate movement we make is dependent on this integrative process. For a five year old child to master the art of tying his shoelace, for example, he must be able to assimilate an extraordinary amount of information. Looking at the activity form the point of view of sensory integration, this includes (in the simplest terms) cognitive understanding of the task, visual memory of the proper sequence of actions, and the ability to focus his attention on his shoe and screen out all other incoming information. In order to bend over and take hold of the shoelace with both hands, without losing his balance, the child depends on bilateral coordination of his arms, as well as what is called vestibular and proprioceptive processing.

Vestibular infromation, which is "stimulated by movement and gravity and is relayed from the inner ear, gives the child an awareness of his position in space", Becker-Lewin explains. "Proprioceptive information, which is relayed from the muscles, joints and tendons, provides him with unconscious position sense of his trunk and limbs." Additional abilities the child needs to tie his shoelace successfully include good tactile awareness for finger alignment, fine-motor coordination, adequate visual perception and a sense of front and back.

No one knows exactly how all this sensory information is integrated to create manual dexterity. We do know, however, that the developmental process that leads to this integration begins in the womb. Two pairs of limb buds- the future arms and legs- appear by six weeks, reports Dr. Michael Bennett in A NEW LIFE: PREGNANCY, BIRTH AND YOUR CHILD'S FIRST YEAR. One week later small clefts appear at the tips of the buds, and within about six weeks the hands will have separate digits. By sixteen weeks, the fingers will be fully formed and seperate, and the nails will be formed as well.

Movements of the arms and legs are frequent by 12 weeks and by 40 weeks a mother can often distinguish between her baby's arm and leg movements. Scientist have found that a four-month old fetus can suck its thumb. And during amniocentesis (the process by which fluid is removed from the amniotic sac for analysis) fetuses have been known to grab hold of the intruding needle.

THE FIRST STAGE: REFLEXIVE MOVEMENT

But scientist believe that the behavior of the fetus, as well as that of the newborn, is essentially the result of reflexes. According to Dr. Gold, this reflexive behavior can be seen in a newborn's arms, which naturally assume an "I surrender", strap-hanging attitude. At birth, it is normal for the arms to be flexed and relatively spastic. (In fact, a preemie can often be spotted by the floppiness of his arms.) A newborn normally keeps his hands fisted with the thumb held on the inside; when your touch and object, such as your finder, to his palm. he will exhibit the Palmer grasp reflex, as his fingers automatically close around it.

Dr. Nancy Rader, co-director of teh Infant and Child Studies Laboratory at the University of California at Los Angeles, is currently investigating the existance of another reflexive hand funciton in the neonate. Reporting on her experiments, Dr. Rader observes that when a seven to fifteen day old infant is presented with a small, bright-colored ball about six inches away from his midline, he will often exhibit a "primitive reaching response". This response is not elicited in all infants, however, and, moreover, may easily be mistaken for random thrashing. But Dr. Rader claims that when a baby's movements during the experiment are filmed and analyzed, often the "baby's arm rises above the waist, moves away from the body in a crooked position, and then sweeps in toward the object at midline", with occasional success in grasping it.

This behavior, along with the Palmer grasp reflex, disappears after the first weeks of life. Researchers believe that many inborn reflexes must disappear for voluntary control to develop and that this happens gradually as one part of the brain takes over from another.

THE DEVELOPMENT OF THE BRAIN

At birth, the brain stem and spinal cord, shich control reflexive behavior, are more fully developed than the cerebral cortex, which governs more sophisticated behaviors. In the process of mapping the human brain, researchers have found the specific regions of the cotex are responsible for different skills and that not all of these regions develop at the same rate. As these different regions mature and the baby becomes capable of more complicated behavior, reflexes are inhibited.

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 0-6 months

The first really noticeable change in the cortex is the appearance of an increased amount of myelin, a substance that serves to insulate the nerve fibers that send information to and from the brain. Once a nerve pathway is myelinated, scientists believe that information can be transmitted with greater efficiency. Myelination continues for years, but the greatest amount is laid down in the first eighteen months of life, a time when children have generally progressed fat enough to take their first steps alone. This would indicate, suggests Steven Rose, author of THE CONSCIOUS BRAIN, that the development of the brain runs parallel to the development of behavioral skills. Although there is no clear line indicating the moment when these reflexes become intentional actions, explains Dr. Barbara Howard, assistant professor of pediatrics at the Johns Hopkins University School of Medicine in Baltimore, Maryland, within just a few months, a baby will be actively engaged in visually reaching and grasping--which means that alothough she is not yet in full control of her movements, they have become purposeful actions.

THE "SENSORY-MOTOR PERIOD"

While a baby is maturing physically and neurologically, the hand is assuming its vital role in cognitive growth. According to the Piagetian theory of cognitive development, reports psychologist Mary Ann Pulaski, author of YOUR BABY'S MIND AND HOW IT GROWS: PIAGET'S THEORY FOR PARENTS, a baby's discovery and gradual control of his hands are an important step out of the natural egocentricity of the newborn, who has no sense of self, the world, or his relation to it.

Exploration of the world with his hands--as well as with his eyes and mouth--gives him his first primitive sense of himself and his world. Since this early learning derives directly from the senses and the exercise of his motor abilities, Piaget refers to the first two years of an infant's life as the "sensory-motor period". Later, as language and logical thought develop, the sensory-motor skills will have less dominant roles in the growth of intelligence.

One of the first steps in this process occurs as an infant adapts his reflexes to different experiences. This adaptation is thought by some psychologists to begin by accident. "Very early the hand finds its way to the mouth to be sucked; it is also capable of grasping objects", writes Dr. Pulaski. "The next step is for these two reflexes to be joined, so that when the hand grasps something like a rattle, it is brought to the mouth to be sucked. At first this combination of behaviors takes palce without the baby's seeing what it is that he is grasping. Whatever he grasps, he sucks; whatever he sucks, he grasps".

In the first few months, as his visual system matures, the baby will slowly learn to control his reach with his eyes, achieving what psychologists call eye-hand coordination. The beginnings of prehension (visually directed reaching) indicate the gradual discovery of the self as seperate from the world, and, according to Dr. Pulaski, "The infant eventually realizes that the object (ie, the rattle) is distinct from the action (grasping)."

Of course, we as observers do not see the actual triggering and continuation of cognitive growth; rather, we see an ever more alert and competent baby interacting more fully with his environment. In the first three months, Dr. Gold explains, the initial spasticity of the arms disappears, and the hand is no longer continutally kept in a fist. At this stage, the baby spends lots of time gazing at his hand and swiping at objects that capture his attention.

However, a baby of three of four months is not yeat capable of focusing his attention on more than one object at a time: if your try to interest him in a key chain when he is already clutching a ratttle, he will unconsciously drop the rattle in order to reach for the key chain.

FOUR MONTHS: A NEW LEVEL OF EXPLORATION

Over the next few months, tactile exploration, although still quite crude, will take on new dimensions as a baby gains greater control of his body and a better sense of the world around him. A milestone is passed at about four months, when a baby can finally bring her hands together at midline and then cross them over. Now she can more fully investigate her own limits of the objects around her. While lying on her back, a four-month old baby will now play with her own hands, and as her eye-hand coordination improves over the next weeks, she will begin to transfer objects from one hand to another. Investigation of an obje-ct will now take on a patter, says Dr. Howard, as the object is grasped, explored, and transferred from one hand to another and then to the mouth for further evaluation.

The properties of objects can also be more thoroughly enjoyed now as they are shaken, banged, and turned about. It is in this way, Dr. Pulaski says, that babies seem to learn about relationships between actions and things.

With practice during t he first six months, a baby finds that an action, such as shaking a toy, produces a result, such as a noise. But he does not yet truly comprehend the idea of casue and effect, says Dr. Pulaski, because "...he does not yet conceive of the objects which produce these results...as existing separately from his actfons upon them." And, according to Piagetian theory, if a baby at this age cannot see an object, in his mind it simply does not exist. If you hide a teething ring in full view of an infant, for example, he will not realize that is has not actually disappeared. "This notion of object permanence takes time to build", reports Dr. Pulaski, "but it is the major intellectual achievement of the sensory-motor period, since it enables the baby to differentiate between himself (egocentrism) and external objects in space."

Glimmers of understanding this concept are generally seen as the baby reaches six months of age. The work of Dr. Rader, however, has shown that if you hide an object under lightweight material, an infant of just five months may be able to lift off the cover and retrieve the object. This finding-that infants can locate an object under a lightweight but not a heavyweight cover--suggests that conginitve growth and the visual system may be somewhat more advanced than hand function at this age.

When the concept of object permanence begins to be established for the infant, we also begin to see more goal-oriented behavior as he further investigates spatial relationships between things. At about seven or eight months of age, a child can usually hold more than one object at a time. Soon objects he holds in each hand can br brought together, and as he does so, he delights in the new sounds he discovers. Imitation also makes its appearance at the end of the first year, especially in the form of finger feeding and scribbling on paper.

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 0-6 months

BRINGING FOREFINGER AND THUMB TOGETHER

Although prehension improves remarkably over the first months, babies still lack one of the essential skills that separate human beings from all other living creatures: the ability to bring the forefinger and thumb together.

A five-month old child, Dr. Gold observes, will approach objects he wants to grasp with the little-finger side of his hand. This grip evolves over the next few months until the child's thumb and forefinger can meet. By eleven or twelve months, the skill has been further refined into what neurologists call a "neat pincer grasp".

A child's mastery of this most vital fine-motor skill generally coincides with her ability to walk alone. This combination of mobility and dexterity radically changes her experience of the world, so that by the time she is two, she is truly an active explorer and experimenter.

ACTIVITIES FOR PRIMARY AGE (0-8)

1. Place squeak and sqeeze toys is the student's hand when it is open. When it closes on the toy, a noise will occur.
2. Use the "Novel Object Box". (refer to the issue of Molehills Out of Mountains Getting Ready to Learn, object permanency section). Place the objects in the student's hands and reinforce for looking at, holding on to the object. You can also place an object in front of the student for him to swipe at, reach for and grasp. Many of the behaviors listed under the objective section can be strengthened by using this box.
3. Place an object on the right side of the student for him to reach for. Take the object from the student and place it on his left side. This type of activity increases awareness of body concepts.
4. Hang a mobile overhead when the student is lying down so he can swipe at, reach for items.
5. Use Mr. Sketch Smell Markers and scribble in bright colors on the easel in the room.
6. Place finger puppets on the fingers of the student to help encourage an awareness of hand movements.
7. Use a variety of pellet-like foods (raisins, Fruit Loops, salted peanuts, Cheerios) for the student to pick up and eat.

LANGUAGE CORRELATE

The behaviors that occur during this developmental stage are often refered to as prerequistes to language. Coggins and Carpenter (1979) identify the following behaviors as necessary prerequistes for language training:

a.) object permanence
b.) awareness of spatial relations
c.) development of means-ends behavior
d.) development of deferred imitation
e.) development of relational and pretend play
f.) acquistion of communicative intentions.

The activities that are stressed at this level strengthen skills that are necessary for spatial relations (vision), means-ends behavior (reach and grasp), and play (manipulation and awareness of environment).

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 0-6 months

ACTIVITIES FOR INTERMEDIATE AGE (9-15)

1. Obtain a large branch and attach various seasonal objects to it for the student to swipe at and reach for. This can be a standard activity where the objects change according to what unit you may be teaching. Some suggestions for objects include: put cherries on a string and attach to the branch for "cherry picking" (substitute the cherries with grapes, strawberries, orange slices), attach Christmas ornaments to the string and dangle from branch, use leaves during the fall, silk flowers during the spring, etc.
2. Have an "Indy 500" race with cars on the table. Push the cars hard enough so they will race over the edge of the table and fall to the floor.
3. Play the game "Hold On!" (see Molehills Out of Mountains, Getting Ready to Learn in Ways of Relating to Objects, Level 0-6 months)
4. Play the "Juggler". Assist the student in transferring a lightweight ball from one hand to the other. (Be sure the ball fits the hand of the student) Sing the song "The Juggler" (to the tune of "The Gambler") during this activity:

"The Juggler"

"You've got to know when to hold it
Know when to throw it
Know when to pass it here
and when to pass it back.
You just keep on moving it
From one hand to the other
There'll be time enough for holding on
When this song is done."

(repeat once, and believe us, once is enough)

5. Play a group game called "Pick Up Cubes". Dump several cubes in the middle of the floor or table and demonstrate how to pick them up. Help the students release them in a can. If the student repeats the action himself, yell "You CAN PICK UP CUBES! and assist the student in grasping cymbals and banging them together in celebration of this great feat. (Helps reinforce the concept of bringing hands to midline, too!)

LANGUAGE CORRELATE

Many of the activities listed in the first issue of Molehills Out of Mountains (Getting Ready to Learn!) can be simultaneously taught with the fine motor objectives at this level.

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 0-6 months

ACTIVITIES FOR ADULTS (16-26)

LANGUAGE COORELATE

1. Attach a hoop to a rope that is hung over a strong bar or rafter suspended from the ceiling. The student will reach for the hoop and grasp it. Have an adult, or another student, pull the rope will the student is grasping it for an exercise called "pull ups". It will also provide the student with the sensation of pulling.
2. Dump raisins, peanuts and other small pellet-like foods for the student to pick up and eat.
3. Draw a cartoon portrait of the student and reinforce him for watching you draw it.
4. Perform a mime show for the students. Wear white gloves and paint faces white. Stress motor patterns with hands. Place white gloves on the student's hands: encourage his attention to hand movements while being a mime.
5. Place a soggy sponge in the open hand of the student. When the student grasps it, the sponge will release water. This activity also reinforces the concept of cause and effect.

OF SPECIAL INTEREST TO GROUP HOME AND FAMILY ENVIRONMENTS:

The listing of behaviors for this level of functioning indicates that these fine motor skills can be reinforced continuously. As family members and providers, it is important to remember to give many opportunities for the students to reach for objects, grasp objects, look at adults and objects. One of the most ideal times for working of fine motor skills will be during mealtime. Since food, in most cases, is extremely reinforcing, it is something that the student will naturally want to reach for and grasp. Be alert for the many chances you will have to work on the behaviors described in the section titled "Objectives". You will find that most of the activities that are suggested at the various age levels are easily adapted to a home setting.

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 7-12 months

GOAL: The student will use the fine motor skills of reach, grasp and release as a way of relating to objects.

OBJECTIVE(S): This list consists of sequential behaviors that emerge in the fine motor component areas. These behaviors MAY be written as a student objective. The behaviors may also be used as guidelines for response levels to the various activities described at the different age levels.

VISION

1. The student will follow adult movement with eyes. (6-7 mos./Sheridan)
2. The student's eyes will follow movements of his hands or of the object in his hands. (8-11 months/Brigance)

REACHING

1. The student will reach out to the side. (6.5 -7 months/Halverson)
2. The student will reach out with a straight approach. (9 mos./Halverson)
3. The student will bring an object to midline. (8-9 months/Bayley, Gesell)
4. The student will bring two objects together at midline (10 months/ Bicanich/Manke)

GRASPING/RELEASING

1. The student can hold one cube and take another. (7 months/Cattell)
2. The student can pull out one large peg. (7 months/Cattell)
3. The student can grasp an object in three seconds. (7-8 mos./Halverson)
4. The student will obtain a small object (peg) with one and same hand five times out of six- indicating hand preference. (8 months/Cunningham and Sloper)*
5. The student will grasp with thumb and forefinger against palm. (9 months, Caplan, Bicanich and Manke, Bayley)
6. The student will poke or examines objects with his index finger. (9-10 months/ Brigance, Bicanich and Manke, Caplan, Gesell)
7. The student will use a pincer like grasp to obtain a pellet. (10-12 months/ Caplan, Cattell, Bayley, Brigance)
8. The student will pull string to obtain an object. (9-11 months/ Gesell Knobloch and Pasamanick)
9. The student will hold crayon and make marks. (11-12 months/ Caplan, Brigance, Cattell)
10. The student will build a two block tower. (12 months/Caplan, Brigance)
11. The student will release a cube into a cup. (12 months/ Cattell, Bayley, Knoblock and Pasamanick)

RELEVANCE TO GROWTH AND DEVELOPMENT:

This list of fine motor behaviors reflects a development sequence within the system of prehension. Noteworthy during this period is the progressive improvement in aim, precision and execution of reaching and grasping, the increasing rotation of the wrist and opposition of the thumb and the gradual replacement of palmer-digital and palmer-thumb approaches to grasp by the use of the thumb and forefinger approach.

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 7-12 months

ACTIVITIES FOR PRIMARY AGE (0-8)

1. Introduce coloring books (or simple worksheets with one object on them) and crayons to the student. Encourage the student to make marks on the paper.
2. Use the Fisher-Price toy titled "Baby's First Blocks". Take the top off and have the student release the block into the can. Later you can put the top on and see if the student can determine which shape goes in what hole.
3. Use clay, playdough and stick buttons or pegs in it. Have the student pull them out. You can also do a variation of this activity with a styrofoam ball and tinker toys.
4. Blow bubbles and have the student reach and poke with fingers. Bubbles are also good for enhancing visual tracking skills.
5. Have a variety of pull toys available for the student to use.

ACTIVITIES FOR INTERMEDIATE AGE (9-15)

1. Conduct a variety of music activities and use cymbals, sandblocks and rhythm sticks. These instruments will help the student bring hands together at midline.
2. Make a type of "Jam Thumbprint" cookies. Make the cookie dough and drop by spoonfuls on the cookie sheet. Have the student poke a hole with his index finger to be filled with jam.
3. Tie a string to a desired object (such as a can of pop, car keys, etc.) Have the student must pull the string to get the object.
4. Mark with colored chalk on the chalkboard.
5. Play a game of releasing objects into a basket. This can be done by releasing clothing articles into a laundry basket or food items into a grocery bag. Sing the "Picking Up Song" while doing the activity. (see OF SPECIAL INTEREST TO GROUP HOME AND FAMILY ENVIRONMENTS).

LANGUAGE CORRELATE

The student is developing a number of motor patterns (or schemes as Piaget would call them) which will allow him to manipulate and explore objects. These behaviors will eventually be used to purposefully obtain some direct result, goal or end. These behaviors will also be used during the intial stages of play.

Many of the activities listed in this section work on skills that require the student to imitate adult actions. This is another prerequiste to language development and instruction.

At this developmental level, encourage localization of voice, turning in response to name being called, and responses to simple commands: no, come here, give it to me. Students should begin to recognize names of VERY familiar objects when they are in sight. Accompany verbal commands or names of objects with gestures and/or signs. By the end of this developmental period, students are imitating a few words/signs, using gestures for bye and come here.

Suggestions/Activities.
1. Call out each student's name in group activities, prompt their response if necessary.
2. Use signs/gestures along with words for up, down, block, finished (all done), pull, pick up, color and crayon.

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 7-12 months

ACTIVITIES FOR ADULTS (16-26)

1. Have the student stack two cans on a shelf. This is a good activity to do when unloading groceries or putting away classroom materials.
2. Use the wantad section of the newspaper for the student to make marks on with a felt tip markers. Any kind of "marking" activities should be done with markers as opposed to crayons at this level. The Mr. Sketch Smell Markers add the dimension of smell to this activity which is appropriate for this level of functioning.
3. Have the student use her index finger to poke at piano keys, guitar, organ, etc.
4. Play different music selections and have the student clap to the music (bringing hands to midline).
5. Drop empty cans to a metal basket. (This activity works on the release of object while at the same time stressing the idea of cause and effect: a loud noise occurs when the can hits the the basket).
6. Have a variety of small objects for student to pick up and put in a cup such as buttons, safety pins, etc. This activity can be conducted as a relay race. Give each student 5-6 objects to put in the cup. The first one to finish wins a prize. Have one studet bang cymbals when the first student finishes the race. (again, working on bringing hands to midline)

LANGUAGE CORRELATE

Suggestions/Activities

3. Name objects being released into a container, using words and signs.
4. Demonstrate the function of the objects being released into the container.
5. When appropriate, encourage the use of signs that bring the hands to midline, ie. shoes, bike.
6. Have the student imitate or use gesture for "come here" to indicate desire for a "turn" in group activities.

Remember, facial expressions and body language are important method of communication--be animated and reinforce the student's use of smiles, gestures and other expressions.

OF SPECIAL INTEREST TO GROUP HOME AND FAMILY ENVIRONMENTS

There are many opportunities throughout the day to work on grasping and releasing objects. One way to introduce a "fun and games" concept to this task is to use the a "Picking Up" song. This particular song is sung to the tune of "Way Down Yonder in the Paw Paw Patch". Two examples are given which describe how the activity may be conducted.

Clothes

"Picking up socks and putting 'em in the basket
Picking up socks and putting 'em in the basket
Picking up socks and putting 'em in the basket
Way Down Yonder in the Laundry Room!"

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 7-12 months

OF SPECIAL INTEREST TO GROUP HOME AND FAMILY ENVIRONMENTS

The student grasps the item when you sing "picking up" and drops it in the basket when you sing "Putting 'em in...". Any clothing article can be substituted for the underlined word.

Fruits and Vegetables

"Picking up tomatoes and putting 'em in the basket
Picking up tomatoes and putting 'em in the basket
Picking up tomatoes and putting 'em in the basket
Way down yonder in the vegetable patch."

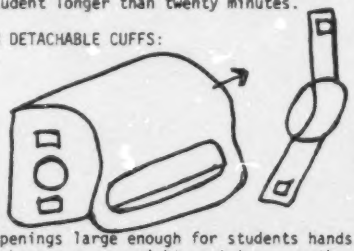
You can use real or plastic fruit for this. The song works the same way as with clothing articles.

SENSORY TACTILE MUFF WITH DETACHABLE CUFFS (designed by Catherine Liesman)

This muff was orginally designed for use with students who were functioning developmentally at around the 7 to 8 month level and using "mouthing" behavior as a major means of relating to objects. It may be a developmentally appropriate behavior, but certainly is not age appropriate. Excessive mouthing not only creates unpleasant and unsanitary conditions, but can also create a health problem for some students who develop chapped hands or sores from biting. One short term intervention is the "TACTILE MUFF". The student's hands are placed in the muff to explore various tactile materials. An object may be placed for further exploration. We have found that using this muff also is excellent for bringing the students hands together at midline. Do not leave the muff on the student longer than twenty minutes.

DIRECTIONS FOR MAKING A SENSORY MUFF WITH DETACHABLE CUFFS:

Materials needed:
1.) Plastic milk jug
2.) Tactile material scraps
3.) Wide Band elastic for cuffs
4.) Narrow elastic for straps
5.) Velcro tabs
6.) small object such as a rattle or keys.



1. Clean the plastic milk jug and make openings large enough for students hands, If there is a rough edge where it has been cut, you might want to cover the edges with moleskin.
2. Line the inside of the muff with various textured materials.
3. If cuffs are needed to keep the muff on the students, first measure the student's wrist size. Sew the wide band of elastic together to make the wrist cuffs. Attach 2 four inch strips of narrow elastic to sides of the cuff.
4. Place Velcro attachments to the ends of the narrow elastic strips and on the inside of the tactile muff.

The following sections of fine motor behavior will stress using the developing skills to complete manipulative tasks. The activities listed are but a few of the many things that you, as a teacher, can do to strengthen development at every level. You will find that the ideas listed will serve as a springboard to your own imaginative activities. And they are all building fine motor skills...ANY WAY YOU CUT IT!

There are many fine commercial materials and programs that are designed to build fine motor ability. The activities that will be described in the following sections are those that require inexpensive, readily available materials or teacher-made materials. For those of you that may have access to funds to purchase materials, a listing of appropriate equipment and programs will be found in the Appendix.

The language correlates in these sections include activities appropriate and consistent with the developmental level listed, as well as some activities (labeling) that are lower developmentally. Check with your speech and language pathologist or consult developmental norms to determine the student's language developmental level. It may not be the same as the student's fine motor developmental level. For example, a student may be working on stringing beads (37-42 months) yet his language task may be to combine two words (18-24 months) "beads on".

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 13-18 months

GOAL: The student will use a pincer grip to manipulate environmental objects.

OBJECTIVES:

1. The student will unwrap loosely wrapped small objects. (13-14 months, Cattel, Brigance)
2. The student will scribble in imitation, using a back and forth motion. (14-16 months, Cattel, LAP, Knobloch and Pasamanick)
3. The student will place a circle in a formboard. (15-18 months, Knobloch and Pasamanick, Lap, ISMMRD)
4. The student will scribble spontaneously. (16-18 months, LAP, Cattell, ISMMRD, Knobloch and Pasamanick)
5. The student will drop small objects (beads) through a hole in a box. (16 months, Cattell)
6. The student will build a three to four block tower. (17-18 months, ISMMRD, Knobloch and Pasamanick)
7. The student will turn 2-3 pages in a book. (18 months, LAP)
8. The student will attempt to imitate marks. (18 months, Brigance. LAP)
9. The student will use a whole arm stroke when using a paintbrush. (18 months, Brigance)

RELEVANCE TO GROWTH AND DEVELOPMENT:

Increasing fine motor ability lets the student begin to learn about objects in his environment. This use of developing grip allows him to begin to produce controlled and purposeful movement. As motor skill increases, so does the student's self confidence.

ACTIVITIES FOR PRIMARY AGE (0-8)

1. Make a batch of cookies. Use cardboard and cut out a circle. Draw on other shapes. Have the student place the cookie in the circle shape. If he can do it, he eats the cookie. Prepare for an onslaught of Cookie Monsters!
2. Have three or four blocks out on the table and tell a story about building a house or other building. Have the students build up the tower as you tell the story. For the climax of the story, have a tornado knock the building over. This allows for repetition of the activity.
3. Dress up as painters and pass out large paintbrushes and buckets of water ("paint") for the students to "Paint" the walls. It's a great way to get them cleaned.
4. Have a "Color Day". Put a different color of paint at the easel every day. (see OF SPECIAL INTEREST TO GROUP HOME AND FAMILY ENVIRONMENTS)

LANGUAGE CORRELATE

The student is able to link specific acts or events to words (such as waving arm in response to the word"bye-bye") Several nouns are understood receptively, and he will begin to look for objects that are out of sight. For example, if a block falls from the table, you can ask "Get the block" or "Where's the Block?' By the end of this developmental stage, he can receptively comprehend selected nouns and verbs. The teacher will want to stress simple noun and verb combinations paired with a sign if the student is using an alternative mode of communicatic

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 13-18 months

ACTIVITIES FOR PRIMARY AGE (0-)

5. Have the student drop marbles into a coffee can with a small hole cut into the top. Shake the can after the marbles are in there.
6. Provide a variety of toddler books for the student to explore. The heavier cardboard type books will facilitate page turning. Often these books have single objects on each page which is appropriate for this developmental level.
7. Have the student make marks in sand, mud, fingerpaint, chocolate pudding, shaving cream, etc.
8. Wrap up part of the student's dessert in a paper napkin during lunch or dinnertime.
9. Get a steady supply of computer paper or newspaper for students to practice making marks and scribbles with crayons, chalk or magic markers.

ACTIVITIES FOR INTERMEDIATE AGE (9-15)

1. Play the game "Drop the Clothespin in the Container". Before starting the game, give the students some clothespins that he can practice "opening and shutting". Provide a can or similiar container so that the student can place his clothespin on the edge. Then have each student take a clothespin and drop it in different sized containers.
2. Draw with chalk on carpet squares. Use a whole arm movement to "erase" the picture and make different marks. When finished, pat and pound the carpet to get rid of the dust.
3. Cut out different sized squares of jello and and have the student attempt to stack the squares.
4. Have a party at an appropriate time during the year. (Christmas, birthday, Valentine's Day, etc.) Purchase small, inexpensive gifts and loosely wrap them for the student to open.
5. Make a variety of single shape formboards for the students to use. Suggestions are: circle cut out of a sponge, circle cut out of plywood or pegboard, circle cut out of plexiglass, etc.

LANGUAGE CORRELATE

At this developmental level, language skills to be encouraged include:
-touching an object when asked "Show me_____."
-recognizing names of others
-beginning recognition of pictures
-indicate wants by pointing
-naming a few objects and/or pictures

You may begin to use one or two picture cards to let the student indicate needs, if the student needs a non-vocal systems.

Suggestions/Activities
1. As a routine, name materials the student will be using to introduce an activity. (for Primary Age #1, name cookie, circle) Use signs/pictures with this presentation.
2. Encourage student to point to, name, use the sign for items you are using for a particular activity. (crayon, paper)
3. Name (using sign and word) pictures in a book. (#6 primary age). Encourage student to pat or point to picture as it is named.
4. Set up some very simple "choices". Place a favorite fine motor activity (marbles in can) next to one that is not so appealing. Prompt the student to point to the activity he wants to do.

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 13-18 months

ACTIVITIES FOR ADULTS (16-26)

1. Have a variety of small household items available for students to pick up and put in containers. Items to use would be safety pins, buttons, hair clips, stick matches, toothpicks, etc. Use a glass jar with a hole in the top so students can see the item being dropped in the container.
2. Use a bank and have students place pennies in the slot.
3. Pass out large paintbrushes and buckets of water and have the student "paint" the wall.
4. Have the student wipe the walls and tables with a sponge or cloth using a whole arm stroke.
5. A variety of magazines should be available for students to look through while turning the pages. Suggestions for a selection of magazines might be LIFE, People, Us, Glamour, Sports Illustrated, Daytime TV or Movie magazines.
6. Activity #9 described in the primary section can be used with this group.
7. Activity #4 described in the intermediate section can be used with this group.

LANGUAGE CORRELATE

Signs can be introduced for the phrase "pick up" for several of the activities. You might also want to name or label pictures with a sign/word while looking through the magazines with the students. The same thing can be done by labeling any of the objects used in any of the activities.

Game #38, "Making Lines" from the book Learningames for the First Three Years can be conducted with all ages of students functioning at this level.

OF SPECIAL INTEREST TO GROUP HOME AND FAMILY ENVIRONMENTS:

You might want to have a color day in your home and plan an entire series of activities around the specific color. Suggestions are given below for a day planned around "YELLOW":

1. Wrap an object in tissue paper or wrapping paper that is yellow.
2. Scribble or make marks with a yellow marker or yellow crayon.
3. Paint with yellow paint at an easel, table or on the sidewalk.
4. Build a tower with yellow jello squares.
5. Collect small yellow items for the student to drop in a container covered with yellow paper.
6. Make a book of pictures cut from magazines that have yellow objects.
7. Make an art collage of yellow materials: tissue, yarn, glitter, different paper textures, paint, chalk, crayon, markers, tape, material swatches,etc.

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 19-24 months

GOAL: The student will use a fisted grasp to manipulate environmental objects.

OBJECTIVES:

1. The student will build a tower of 5-6 blocks. (21 months, ISMHRD, Knobloch and Pasamanick)
2. The student will fold paper once in imitation. (21-24 months, LAP, ISMHRD, Bicanich and Manke)
3. The student will complete a three piece formboard. (22-24 months, Cattel, Brigance, ISMHRD, Bicanich and Manke)
4. The student will imitate a vertical stroke. (24 months, LAP, Knobloch and Pasamanick)
5. The student will imitate a circular stroke. (24 months, LAP, Brigance, Bicanich and Manke, Knobloch and Pasamanick)
6. The student will turn pages of a book singly. (24 months, LAP, Knobloch and Pasamanick)
7. The student opens and closes scissors. (24 months, Brigance, Bicanich and Manke)
8. The student uses overhand grasp with objects. (24 months, LAP, Brigance, Bicanich and Manke)

RELEVANCE TO GROWTH AND DEVELOPMENT:

A fisted grasp enables the student to attempt a variety of strokes with marking apparatus. The "opening and closing" involved in this grasp allows the the student to begin to use scissors. The pincer grip is more refined at this level, and the student begins to use a precise thumb and index finger movement. Although the objectives listed above all stress specific tasks, any activities stressing pincer grip or fisted grasp will enhance development during this period.

ACTIVITIES FOR PRIMARY AGE (0-8)

1. Have the student fold a paper plate in half in imitation. This can become a puppet. The student can use it to practice the opening and closing motion that is involved in a fisted grasp.

You might want to staple a band to the plate so the student has a means of supporting her hand.

2. Introduce a "story hour" with picture books to this age group. Keep the story no longer than three to five minutes. Have the student assist in turning the pages of the book.

LANGUAGE CORRELATE

During this period you can expect the student to use single words to communicate wants or identify objects that are being used. With all the activities, the teacher should provide a single word identification for the student to imitate.

It is also interesting to note that during this developmental stage the student will respond to 50% of the commands in the form of a verb and noun. (for example "give book")

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 19-24 months

ACTIVITIES FOR PRIMARY AGE (0-8)

3. Place a piece of tape on the chalkboard. Have the student brush along the tape or move a piece of chalk along the tape making a vertical mark.
4. Use a variety of puppets (hand) for the student to practice opening and closing the mouth.
5. Do the fingerplay "Open Them, Shut Them"
   "Open them, shut them; open, shut them,
   Give them both a clap
   Open them, shut them; open, shut them
   Now put them in your lap."
6. Use a jumbo pegboard and have the student put pegs in the board and pull them out.
7. Use a pair of tongs for the student to practice the motion of opening and closing which is used with scissors.
8. Make a peg cart toy. The directions for making this can be found in the book titled Multisensory Aids from Scrap. This toy can be used for developing pulling, pincer grip, poking and fisted grasp.
9. Cut out a large circle shape out of computer paper or newspaper. Demonstrate how to use markers to make circular strokes. Let the student mark in a circular fashion on the paper.
10. The Fisher-Price toys of the radio, Two-Tune TV and clock all have knobs that require an overhand grasp.
11. Take a clear plastic jar with a screw-on lid and show the student how to open it using an overhand grasp. Take a piece of candy and drop it in the jar and replace the lid. If the student wants the candy, she will have to unscrew the lid.

ACTIVITIES FOR INTERMEDIATE AGE (9-15)

1. Make additional formboards like those described in the section Developmental Level 13-18 months usingthree shapes instead of the single shape format.
2. Cut strips of sandpaper and make a large circle shape that the student can follow tactily with her index finger. Help her trace the circle in a counter- clockwise fashion.

LANGUAGE CORRELATE

At this level, the student expands upon skills acquired at 16-18 months; naming behavior increases and the student begins to put two words together to express thoughts.

Suggestions/Activities

1. Using paper plate "puppet" have the student grab items that you name. Encourage the student to have puppet make sounds or name objects.
2. At storytime- choose 3 "target" words that are repeated in the story. Encourage students to say/sign/point to a picture of the target words.
3. Signs for "open" and "close" can be used to emphasize fine motor action.
4. Signs for "pick up" and "find" utilize pincer type grasp and open and close motion- use them and have the students imitate them when appropriate.
5. Sign for "circle" utilizes circular motion- introduce circle drawing activities with this sign.
6. When "getting physical" (Adult #6) have students identify body part used in make the circular motion.
7. When racing cars, combine the words and signs "car go" and "car stop".
8. Combine words and signs "open+ object" and "close+ object

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 19-24 months

ACTIVITIES FOR INTERMEDIATE AGE (9-15) LANGUAGE CORRELATE

3. Whenever appropriate, have a group of students (or student) make various greeting cards. These can be pre-written and xeroxed or created individually by each student. When completed, demonstrate how to fold the card in half and have the student imitate.
4. Tape two large lines on the chalkboard in vertical fashion. Have the students "race" small cars down the track imitating a vertical stroke. Repeat the activity by subsituting chalk for the cars.
5. Give each student five or six blocks. Set a timer and have a race to see who can stack the blocks the fastest.
6. Play a game titled "Lock the Teacher Out of the Room". The staff member leaves the room and shuts the door. She "begs" the student to let her in. The student must turn the door handle. It is best to have another staff member "assisting" the student, otherwise, you may never get back in.

ACTIVITIES FOR ADULTS (16-26)

1. Use the tower building objective to create a game that will also stress peer interaction. Give each student in a group of six one block. The first student places her block on the table. The second student must place a block on the block. Continue until all the blocks are used. If the tower falls before the blocks are all used, the person who knocked it over starts the new tower.
2. Contact different organizations in the neighborhood to see if anyone needs flyers folded in half. One good place to start is independent supermarkets or small business that distribute these door-to-door. Start teaching folding in imitation by helping the student pat the crease down with the palm of her hand. As she becomes more skilled, use all the fingers to pat the crease. The final step is to be able to use the index finger.

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 19-24 months

ACTIVITIES FOR ADULTS (16-26) LANGUAGE CORRELATE

3. Make a variety of formboards out of magazine pictures. Cut out the picture and mount in on heavy cardboard. Make sure it is tightly adhered to the cardboard before cutting. Cut out a circle, triangle and square from strategic places in the picture.
4. Wring out a washrag to get the twisting motion involved in turning a door-handle.
5. Cover door knobs with different textured materials to encourage the student to open the door and escape. (just kidding)
6. Do a variety of exercise to the song "Let's Get Physical" by Oliva Newton-John. Help the student move arms in a circular fashion in front of her body. Do several movements with arms moving up and down imitating a vertical stroke.

OF SPECIAL INTEREST TO GROUP HOME AND FAMILY ENVIRONMENTS:

There are many activities that can be conducted around the house to strenthen the skills that are stressed during this period of development. To get your imagination rolling, we've listed a few:

-When you are outdoors with the students, have them pull weeds from the garden or flower beds.
-Grasp a sponge or washcloth and wring out from a sink of soapy water.
-Fold towels in half.
-Fold newspapers in half and stack.
-Make a placemat with this design. Have the student complete the mat by matching shapes to it while setting her plate for dinner. Fold napkins in half.
-Stack shoeboxes in the closet.
-Sqeeze ketchup and mustard plastic containers.
-Keep a variety of condiments in half filled jars for the student to unscrew (mustard, peanut butter, jam, mayonaise, etc.)
-Look through magazines.
-Sqeeze different textures of paper before throwing it in the trash. (wax paper, paper towel, newspaper, foil, saran wrap)
-Drink pop from a can (fisted grasp).

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 25-30 months

GOAL: The student will use two hand coordination to manipulate objects in his environment.

OBJECTIVES:

1. The student will scribble without going off page of paper. (25 months, Brigance)
2. The student uses wrist/scribbling motion with a paintbrush. (25 months, Brigance)
3. The student will manipulate clay (fingers, pounds, squeezes). (25-30 months, Brigance)
4. The student will hold pencil with finger instead of fist. (30 months, LAP, Brigance, Knobloch and Pasamanick)
5. The student will snip or make small cuts in paper with scissors. (30 months, Brigance)
6. The student will build an eight or nine block tower. (30 months, LAP, ISMMRD, Knobloch and Pasamanick)
7. The student will imitate a horizontal stroke. (30 months, LAP, ISMMRD, Bicanich and Manke)
8. The student will unzip a non-seperating zipper (25-30 months, Brigance)

RELEVANCE TO GROWTH AND DEVELOPMENT:

It is during this period that you will notice ths student using his less dominant hand to support the activities of the dominant hand. For example, you may see him hold the paper with one hand while he is scribbling or hold a piece of paper while he cuts it. The student will be able to tear paper using two hands. This development of two handed coordination will enable the student to build skills necessary for more complex assembly activities.

You may notice that several of the objectives listed in this section are similiar to objectives listed in previous sections. The review through assessment tools revealed these to be the most common items tested. Activities that correspond to these objectives from previous sections may be adapted for this section. You will notice that there are activities listed that do not correspond to specific objectives but will enhance two-handed coordination.

ACTIVITIES FOR PRIMARY AGE (0-8)

1. Have the student pull apart popit beads.
2. Push on the handle of a "Pound-a-Round" to make it spin.
3. Have a variety of pliable substances such as Playdough, clay, Silly Putty for the student to manipulate in various ways.
4. Race cars from left to right while imitating a horizontal stroke.
5. Put a raisin or small edible in an empty L'Eggs container. The student must pull the container apart to get the edible.

LANGUAGE CORRELATE

The student at this language level will refer to himself by name, understand some pronouns, prepositions. The student can answer "who and what" questions, use language to precede or describe action, and use two to three word phrases.

MOLEHILLS OUT OF MOUNTAINS

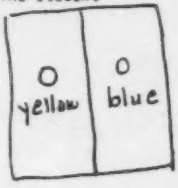
DEVELOPMENTAL LEVEL 25-30 months

ACTIVITIES FOR PRIMARY AGE (0-8)

6. Play a "suprise" game. Use a duffle bag for the student to unzip. Put several small, wrapped "surprises" in the container and zip it up. (cookies, balloons, small toys). The student opens the duffle bag by unzipping, picks a surprise and opens it. He then closes the zippered bag up and passes to a peer.
7. Make a bulletin board for the room to correspond with events and seasons. Have the students snip at pieces of construction paper to make the border. You can make grass, hay, snow, etc.
8. Make a variety of tactile boards for students to feel while moving from left to right and imitating a horizontal stroke. Use a strip of sandpaper, yarn or various fabrics.

ACTIVITIES FOR INTERMEDIATE AGE (9-15)

1. Make cookie dough for students to manipulate while shaping cookies for baking.
2. Have sheets with a green dot at one end and a red dot at the other end to assist the student in imitating horizontal lines.
3. Rip newspaper to stuff in clothing to create decorative figures. (see OF SPECIAL INTEREST TO GROUP HOME AND FAMILY ENVIRONMENTS)
4. Make "Paint by Color" sheets. The student matches the color on the sheet to the paint and proceeds to fill it in.
5. Tear pieces of tissue paper to make a collage.
6. Snip string with scissors, dip in paint and drap on paper to make a string design.



LANGUAGE CORRELATE

Suggestions/Activities
1. Have student name (using words, signs, pictures) objects to be used in familiare activities
2. Teach the sign/word for zip, open, close, scissors and paper.
3. When moving cars on horizontal surface, teach "fast" and "slow". Have the students move the cars fast or slow or label the movement you are doing.
4. Teach meaning of the words soft, hard, rough and smooth using the tactile board.
5. Use two handed signs when appropriate. Teach the students the phrase "Help me" when they need assistance with tasks.

LANGUAGE CORRELATE

6. Introduce signs/words used to name colors when painting or coloring.
7. Label actions and objects using two signs: cut paper, zip pants, make cookie, my cookie, your cookie,(student's name) cookie.
8. Have the student "ask" you for one item needed (ie. scissors) for a project by saying/signing "I want _____".
9. When introducing an activity, have students use word/sign/pictures to name objects being used and actions to be done. (ie. "scissors- cut paper; paint- color paper, etc After the activity is complete, ask the students "What did you do?" while pointing to the finished product.

MOLEHILLS OUT OF MOUNTAINS

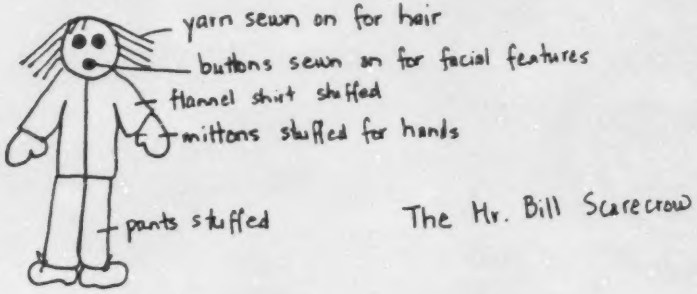
DEVELOPMENTAL LEVEL 25-30 months

ACTIVITIES FOR ADULTS (16-26) LANGUAGE CORRELATE

1. Make bread with the students. Allow them to manipulate the bread by punching, kneading, rolling, squeezing, etc. Bake it and have a slice fresh out of the oven.
2. Have the students unzip duffle bag to put gym articles in or take out. This same activity can be done with grooming kits or make up bags with appropriate materials in them.
3. Stack empty cartons before throwing them away. (egg cartons, milk cartons, cereal box, cracker box, etc.) You'll have the neatest garbage around!
4. Make name boards for the group. Use a slotted board and have the student move his name from left to right (OUT to IN) when entering the classroom or workshop.
5. Practice open and close concepts needed for cutting with scissors by (a) pinching clothespins on a rope, (b) picking up ice or salad with tongs.

OF SPECIAL INTEREST TO GROUP HOME AND FAMILY ENVIRONMENTS:

Students can get alot of practice with two hand coordination by ripping newspaper. During the fall, you can assemble clothing articles and make a scrawcrow for the front porch. Use a flannel shirt, pillow case for head, straw hat and blue jeans. Have the students rip newspaper and stuff the clothing. You can vary these figures by having a SantaClaus, a leprechaun for St. Patrick's Day, a Baseball Player for opening day, a ghost or witch for Halloween, etc. The possibilities are as endless as your imagination.


yarn sewn on for hair
buttons sewn on for facial features
flannel shirt stuffed
mittens stuffed for hands
pants stuffed
The Mr. Bill Scarecrow

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 31-36 months

GOAL: The student will use refined, upper extremity movements to manipulate objects.

OBJECTIVES:

1. The student will string one inch beads. (31 months, Brigance)
2. The student will copy a circle. (31-36 months, Brigance, Gesell, ISMMRD, Bicanich and Manke, Lap, Illingsworth)
3. The student will imitate building a bridge. (33-36 months, LAP, Illingsworth, Knobloch and Pasamanick)
4. The student will build a tower of ten blocks. (33-36 months, Lap, Illingsworth, Knobloch and Pasamanick)
5. The student will use vertical, horizontal, dots and circular movements with a paintbrush. (34-36, Brigance, Sheridan)
6. The student will cut across paper with scissors from one side to the other. (36 months, Brigance, ISMMRD, Minnesota Child Development Inventory)
7. The student will imitate drawing a cross. (36 months, ISMMRD, LAP, Bicanich and Manke)

RELEVANCE TO GROWTH AND DEVELOPMENT:

We have seen fine motor movment progress from "sensory awareness (tactile, Kinesthetic) followed by gross upper extremity movements (tearing, squeezing, grasp/release, opposition) to finer, more refined upper extremity movements (tongs, tweezers, scissors, paper and pencil activities)." (Bicanich and Manke, 1978) The skills acquired during this period will be used for table tasks and activities of an "academic" nature such as writing.

ACTIVITIES FOR PRIMARY AGE (0-8)

1. Draw circles on paper with seasonal motifs. For example, the circles can be colored orange at Halloween for pumpkins, can be turned into wreathes at Christmas, Easter eggs, etc.
2. Use a simple children's book about building a bridge. After telling the story, give the students blocks to build their own bridge like in the story.
3. String large pieces of macaroni for necklaces. The macaroni may be dyed before string.
4. Help the students find circular objects in the classroom and trace them with their finger.

LANGUAGE CORRELATE

A student at this language age continues to expand vocabulary, learning the meaning of pronouns, making size and shape discriminations (big/little), categorizing objects, asking questions, using plurals and some irregular tense verbs.

Suggestions/Activities

1. Expand simple labeling of objects used in these activities to include clor, shape and size descriptive words...orange circle, big bridge, little macaroni, round clock, etc.

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 31-36 months

ACTIVITIES FOR PRIMARY AGE (0-8)

5. Use the student's index finger and have her trace circles in sand, on carpet squares, in finger paint, mud, whipping cream, pudding, etc.
6. Have the student color a picture of a circle. Draw a large circle and glue a yarn boundary around it to help her stay in the lines.
7. Create different kinds of crosses during art projects: glue popsicles together to form a cross, glue two strips of paper together, toothpicks, etc.
8. Repeat activity number 5 only have the student experience a cross tactilely.

ACTIVITIES FOR INTERMEDIATE AGE (9-15)

1. Find pictures in a magazine that have a definate line across them. Highlight that division with a magic marker and have the student cut across the page.
2. Have the student copy a large circle. The instructor can then fill in the circle with facial features and do a carticuture of the student.
3. Play "X Marks the Spot". Use a large sheet of paper and place stick-on dots all over it. (You can draw your own dots on.) Take a marker and say "X marks the spot" and make a large mark (cross) on the paper. Have the students imitate.
4. Provide a variety of painting experiences for the students to engage in. Use different paints and assorted sized brushes. You can set out watercolor, tempera, fingerpaint, foodcoloring and water, etc. Encourage the students to utilize the the strokes mentioned in the objective section.
5. Purchase the "Paint by Water" books from the dimestore and provide brushes and water. (This is a good activity for the Primary Age, also)

LANGUAGE CORRELATE

Suggestions/Activities:
2. After making necklaces, encourage student's use of pronouns- my necklace, her necklace, his necklace.
3. Ask questions that demand a student realy experiences from the recent past- at the end of the school day, ask students to tell three or four things they did. This encourages the use of past tense.
4. Expand on simple identifi-- cation taks by requesting students to identify object when their function is named. For example, during the game "X marks the spot", ask the student, "Find what you draw with" or "Find what you color on".
5. Have students expres negative statements using "not" by grouping items: "circle, not a circle", "cross, not a cross"

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 31-36 months

ACTIVITIES FOR ADULTS (16-26) LANGUAGE CORRELATE

1. Purchase large beads from a wholesaler. Have the students make necklaces to wear. They may also make large strands of beads to hang in the doorway. (Viva 'la 60's!)
2. Use the newspaper to work on cutting skills. The wantad section provide 1½ to 2 inch sections that can be outlined with a marker. The student can then cut across the page. The same activity can be done with the coupon section in the paper.
3. Copy large circles. Have the teacher assist the student with cutting around the circle. Decorate, laminate and use for placemats.
4. Play "X Marks the spot". (See activity #3, Intermediate age)
5. Repeat any of the tower building games described in previous sections only add up to ten blocks or items to stack.
6. Brush a piece of paper with liquid starch and shake various herbs and spices on it to make a smell collage.

OF SPECIAL INTEREST TO GROUP HOME AND FAMILY ENVIRONMENTS:

Create a fine motor "grab bag", using an old (but large) purse or gym bag. At first, place materials in the bag suitable for one activity, ie. newspaper and scissors; markers and drawing paper. Encourage the student to open up th bag (unzip) to discover the "surprise" activity for the evening. Observe what the student does with the materials, see if what they learn at school is used at home. However, ALWAYS channel them into constructive behavior. (No paint on the walls, please) In time, include novel combinations of materials: glue, dried flowers found on a walk, bits of scrap material and paper. As always, save valuable "household Junk" for this bag: cotton from pill containers, L'Eggs containers, empty squeeze bottles to be filled with paint, newspapers, magazines, cans, etc.

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 37-48 months

GOAL:

The student will improve eye-hand coordination.

OBJECTIVES:

1. The student will string small beads (37-42 months, Brigance/LAP)
2. The student will wind up appropriate toys or objects. (42 months, Brigance)
3. The student will trace a diamond. (42 months, LAP/Brigance)
4. The student will complete a six piece pegboard within 17-20 seconds. (42 months, LAP/ISMRRD)
5. The student will screw and unscrew lid. (42-48 months, ISMRRD)
6. The student will sort dissimiliar objects. (43-48 months, Brigance)
7. The student will complete inset puzzle of 3 to 6 pieces. (48 months, LAP/Brigance/ISMMRD)
8. The student will trace along vertical and horizontal lines. (48 months, Brigance)
9. The student will draw a two piece person. (48 months, Brigance/LAP, Bicanich and Manke)
10. The student will make crude objects out of clay. (48 months, Brigance)
11. The student will copy a cross. (48 months, LAP/Bicanich and Manke)

RELEVANCE TO GROWTH AND DEVELOPMENT:

The objectives listed above are but a sample of the behaviors that can be taught to improve eye-hand coordination. The objectives listed are those that are commonly found on tests that assess fine-motor ability. As you can see, eye-hand coordination will enable the student to engage in many tasks that are associated with self-help skills, leisure time activities and vocational tasks.

ACTIVITIES FOR PRIMARY AGE (0-8)

1. Provide the student with other materials for stringing: cereal loops, large straws cut in pieces, large macaroni rings. Stress the "on and Off" positions.
2. Fisher-Price and Ideal make fine commercial puzzles for use at this age.
3. Read the story "Is This You?" by Ruth Kraus and have the students perform the drawings as the story directs. Make the drawings into a book for the student to take home.
4. Read the story "The Gingerbread Man" and have the students make gingerbread men out of dough as a follow up.

LANGUAGE CORRELATE

A student at this level (4 years) is able to carry on a conversation and be understood by any adult. Many basic rules of grammar are used correctly. the student continues to expand vocabulary to include time concepts, spatial relationships, questions of "why, where, when" and some numerical concepts.

Suggestions/Activities

1. Encourage students to identify and name shapes: circle, square and triangle.

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 37-48 months

CTIVITIES FOR PRIMARY AGE (0-8)

5. Purchase several coloring books from the supermarket which have simple pictures and dark lines. Have the student trace along the lines.
6. Use a variety of small wind-up toys such as the Peanut series or the Key Cars.
7. Get a large plastic laundry tub and fill with a sensory substance such as sand, styrofoam pieces, Easter grass, or leaves. Place two different kinds of objects in the tub for the student find and sort into two piles. (ie. shells and pieces of sponge)
8. Make a shape template of all the shapes used up until now. (circle, cross, square, horizontal and vertical strokes). Introduce the diamond shape on the template.

CTIVITIES FOR INTERMEDIATE AGE (9-15)

1. Have the student color empty spools of thread green and red. Have him string the spools on picture wire for a wreath. This can be his own Christmas decoration. Variations of this activity can be done for other holidays: orange and black for Halloween, pastel colors for Easter, green for St. Patrick's DAy, red and white for Valentine's Day, etc.
2. Make a race of completing the six peg pegboard. Use a stopwatch and time the students. Give a "trophy" to the fastest time.
3. Sort knives, spoons and forks into a silverware tray. There are many things that can be sorted in the kitchen: cups and plates to be put away, silverware from dinnerware (glasses, plates) before loading a dishwasher, etc.
4. Introduce Frostig sheets or the Dubonoff Handwriting Program for practice at tracing along vertical or horizontal lines.

LANGUAGE CORRELATE

Suggestions/Activities

2. When reading storeis, ask questions about the subject matter. Be sure to include where, when and why questions and not limit yourself to who and what.
3. For sorting tasks, use big/little or long/short items that are the same. Have the students sort and then name and/or sign: "These are big_____". "These are little_____".
4. Identify by pointing or naming colors used in all activities. Stress time concepts in activities geared around the holidays.
5. Practice verb tenses and time concepts by having students imitate/complete sentences such as "Yesterday, I made a_____." "Today I am making a_____." "Tomorrow, I will make a_____." This activity can be used during calendar sessions.
6. Have students identify more than one use of certain items: for example, needle and thread will sew clothes, string popcorn, etc.
7. The ideas listed under Intermediate Age (#5 and #6) can be done using picture card or Blissymbolics. Alwasy include the word plus the picture/symbol Students who have been using picture cards or Bliss as a supplemental system can "read" the books and bingo cards.
8. Have students "count" objects that they work with: jars and lid, spoons, forks, knives, etc.

ACTIVITIES FOR INTERMEDIATE AGE (9-15) LANGUAGE CORRELATE

5. Encourage students to make their own books. Use a language experience approach and have them dictate key phrases or words to accompany pictures. Topics could include "People at School" or "My Family".
6. Play "Picture BINGO". Make Bingo cards from pictures in magazines. Use a nine square format. You must have a matching picture from a magazine that corresponds to the one on the card. (You can also use purchased sticker cards from any local gift shop or Hallmark store). When You play Bingo, you hold up one picture and the student makes a cross on his picture if it matches. (Be sure to laminate the BINGO cards or cover them with clear contact paper so they can be used again.)
7. Obtain a variety of jars and lids. Take off all the lids and have the student screw the correct lid back on. You can color code lids to jars if the student initially requires some assistance.
8. Have the student make simple objects out of self-drying clay. Paint and glaze the item when dried.
9. Bring in a colorful kite to suspend from the ceiling around springtime. Then have the students make a bulletin board about kites called "Flyin' Into Spring". Have them trace diamond shapes and cut them out. Each individual student can place his kite on the board.

ACTIVITIES FOR ADULTS (16-26)

1. Unscrew and fill salt and pepper shakers, spice jars, ketchup and mustard bottles, etc.
2. Thread buttons with a large needle.

DEVELOPMENTAL LEVEL 37-48 months

ACTIVITIES FOR ADULTS (16-26) LANGUAGE CORRELATE

3. Thread small glass beads on picture wire to make necklaces. An assortment of other types of beads may be purchased wholesale for jewelry items.
4. Make bread dough ornaments, paint and bake. Provide models of ornaments already made for the student to fashion his after.
5. There are many small items around a classroom or home that always seem to need sorting: nuts, bolts, washers, hairpins, safety pins, pennies, rubber bands...the possibilities are endless. Provide the student with a sorting tray (the three section Chinet paper plates make a good tray) and have him sort a variety of these objects.
6. Make puzzles (3-5 pieces) out of popular posters or magazine pictures of an adult nature. Mount the picture on plywood and cut with a jig saw.
7. Have the student wind up an alarm clock.
8. String popcorn and cranberries on picture wire during the holiday season for a decoration. (see OF SPECIAL INTEREST TO GROUP HOME AND FAMILY ENVIRONMENTS)
9. Provide each student with a personal calendar. Plan a discussion session at the end of the day recalling the day's events. Have the student make a cross through the day at the end of the discussion.

OF SPECIAL INTEREST TO GROUP HOME AND FAMILY ENVIRONMENTS:

"Decorating for the Holidays" The Christmas and Hannukah season provide a wealth of ideas for stressing the fine motor skills involved during this developmental period. Here are a few ideas to get you started.

-Make bread dough ornaments to hang on the tree.
- Use a pincer grip to pick up tinsel strands and hang on tree.
-Place candles in candle holders. (similiar to placing pegs in hole)
-Plan any of the activities listed in the different age sections (the wreath project, making the chain of beads for the tree, making popcorn and cranberry chains, etc.)
-Place stencils on the window and have the students paint over them.
-Sort out ornaments and place them in the containers when taking down the tree.
-Make sachet jars by unscrewing lids, filling with herb assortment and screwing the lid back on.

MOLEHILLS OUT OF MOUNTAINS

DEVELOPMENTAL LEVEL 49-60 months

GOAL: The student will improve finger dexterity.

OBJECTIVES:

1. The student will lace a sewing card. (49-60 months, LAP, Brigance, ISMMRD)
2. The student will fold paper diagnolly and crease it. (49-60 months, DASI, LAP, Brigance)
3. The student will complete an eight piece inset puzzle. (54 months, LAP, Brigance)
4. The student will add three parts to an incomplete man. (54 months, LAP, ISMMRD)
5. The student will copy a square. (54 months, LAP, Brigance, Bicanich and Manke)
6. The student will print two letters. (54 months, LAP)
7. The student will move paper while cutting it. (54 months, Brigance, ISMMRD
8. The student will trace between lines. (54-60 months, Brigance, Bicanich and Manke)
9. The student will build a pyramid of six blocks. (54-60 months. LAP, DASI)
10. The student will grasp a pencil correctly. (60 months, Brigance)
11. The student will use a pencil and connect dots to make a design. (60 months, Brigance)
12. The student will trace within a template. (54-60 months, ISMMRD)

RELEVANCE TO GROWTH AND DEVELOPMENT:

These objectives are common items found on developmental assessments at this level. They are basically extensions of prior objectives. These behaviors require a certain degree of finger dexterity. This section will not include activities, as it is apparent that many of the ideas listed in previous sections are appropriate here.

Following this section are appendices listing commercial materials which strengthen fine motor skills along with resources and a bibliography.

LANGUAGE CORRELATE:

Use suggestions from Developmental Level 37-48 months.

APPENDIX A: COMMERCIAL MATERIALS

0-6 MONTHS

Rota-Rattle (Kaplan: grasp, swiping)
Kiss Fish (Kaplan: grasp, swiping)
Red Rings (Kaplan: grasp, release, dangling object)
Tracking Tube (Kaplan: grasp, release, visual tracking)
Rattles (assorted selection of different textures for grasping, releasing)
Busy Box (Mattel, Fisher-Price: vision, reaching, manipulation)
Music Box Mobiles (vision, reaching)
Active Baby (Constructive Playtings: grasping,)
Foam Trio (Constructive Playthings: grasping, releasing)
Play Gym: (Fisher-Price: grasp, release, dangling object)
Swingles (Milton Bradley: vision, reaching)

7-12 MONTHS

Click Clatter Car (Kaplan: pull out peg)
Cloth Blocks (Kaplan: stacking, grasping)
Baby's First Blocks (Fisher-Price: grasp, release, stacking)
Various pull toys such as Bob-A-Long Bear, Snoopy Sniffer, Trailer, etc.
(Fisher-Price, Constructive Playthings: pull string to get object)
Soft Blocks (Constructive Playthings: stacking)
Jingle Rattle Clunk Blocks (Constructive Playthings: examine with index finger)
Fitting Forms (Constructive Playthings: pull out peg)
Hanging Clown and Bird (COnstructive Playthings: pull string)
Floating Family (Constructive Playthings: pull peg out)
Tactile Drawing Board (DLM: making marks, examine with index finger)

13-18 MONTHS

Milk Carrier (COnstructive Playthings: complete 6 peice pegboard)
Jumbo Pegboard (Constructive Playthings: complete pegboard)
Kantroll Prang Crayons (making marks)
Mr. Sketch Smell Markers (making marks)
Assortment of cardboard toddler books
Colored Inch Cubes (DLM: stacking)
Kindergarten Blocks (Ideal, MIlton Bradley: stacking)

19-24 MONTHS

Tote a Tune Music Box (Fisher-Price: overhand grasp)
Music Tick Tock Clock (Fisher-PRice: overhand grasp)
Etch a Sketch (Constructive Playthings: overhand grasp)
Easy Grip Scissors (DLM: cutting)
Little Cannisters (DLM: stacking)
Loc Blocks (DLM: stacking)
Two Tune TV (Fisher- Price: overhand grasp)

25-30 MONTHS

Cash Register (Fisher-Price: eye-hand coordination, manipulation)
Squeeze Please (Kaplan: two hand coordination)
Snap Lock Beads (Kaplan: two hand coordination)
Geometric Learning Shapes (Ideal: two hand coordination)
Thread- a-Block (Constructive Playthings: two hand coordination)

31-36 MONTHS

Form Puzzle (DLM: formboard activity)
Tactile Mat Formboards (Ideal: formboard activity)
Flingles (Milton Bradley: stringing)
Wooden Beads and Laces (Constructive Playthings: stringing)
Giant Threading Spools (Constructive Playthings: stringing)
Coordination Board (Constructive Playthings: formboard)
Bead's and Laces (Kaplan: stringing)

37-48 MONTHS

Reels and Wheels (DLM: eye hand coordination)
Threading Board (DLM: stringing)
Large Pegboard (DLM: eye hand coordination)
Buttons and Laces (Constructive Playthings: eye hand coordination)
Knobbed Beginner Puzzles (Constructive Playthings: eye hand coordination)
Beginner Inlay Puzzles (Constructive Playthings: eye hand coordination)
Plastic Beads (Kaplan: stringing)
Finger Games (Kaplan: record for improving finger dexterity)

49-60 MONTHS

Lacing Board and Cards (DLM: finger dexterity)
Clear Stencils (CLM: writing readiness, templates)
String Along (DLM: stringing)
Various Stencil Designs (DLM: writing readiness, templates)
Groovy Letters (Ideal: printing)
Visual Tracking Cards (Ideal: writing, dot-to-dot)
Judy Puzzles
Playskool Puzzles
Clap, Snap, Tap (Kaplan: record for improving finger dexterity)
Clap Hands with Sing and Do (Kaplan: record for improving finger dexterity)

Fine Motor Programs

Eye Hand Intregation Exercises I and II (DLM)
Name Writing Program (Ideal)
Dubnoff School Program I (Teaching Resources)
Dubnoff Write-On Cards 1,2,3,4 (Teaching Resources)
Marianne Frostig Program for Perceptual Motor Abilities

APPENDIX B: ASSESSMENT SOURCES

BAYLEY: Bayley, N. Bayley Infant Scales of Development; New York: Psychological Corporation, 1968

BRIGANCE: Brigance, Albert Inventory of Early Development (Birth to Seven), Curriculum Associates, 1978

CATTELL: Cattel, P The Measurement of Intelligence of Infants and Young Children, New York: Psychological Corporation, 1940

CAPLAN: (source used by LAP and Early-LAP)

Early- LAP: Sanford, Anne Learning Accomplishment Profile (Birth to Thirty Six Months), Chapel Hill, North Carolina, University of North Carolina at Chapel Hill, Chapel Hill Training Outreach Program,

GESELL: Gesell, Arnold The First Five Years of Life, New York: Harper 1940

HALVERSON: Halverson, H. The development of prehension in infants, In Baker, Koumn, and Wright (Eds.) Child Behavior and Development, New York: McGraw-Hill, 1943

ISMMRD: Schaefer, S. and Moersch, M. (Eds.) Developmental Programming for Infants and Young Children, Ann Arbor: University of Michigan Press, 1977

KNOBLOCH and PASAMANICH: (source used by LAP and Early-LAP)

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SHERIDAN: Sheridan, M The Developmental Progress of Infants and Young Children, London: Her Majesty's Stationary Office, 1968

UZGIRIS/HUNT: Uzgiris, I. and Hunt, J. Assessment in Infancy: Ordinal Scales of Psychological Development, Urbana: University of Illinois Press, 1975

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Chapel Hill Training Outreach Program A Planning Guide to the Preschool Curriculum, Chapel Hill, North Carolina, Kaplan Press, 1976

(a curriculum guide of 44 topical units: each unit has a fine motor section with seasonal activities)

Cohen, Marilyn and Gross, Pamela The Developmental Resource, Volumes I and II, New York: Grune and Stratton, 1979

Cunningham, Cliff and Sloper, Pat Helping Your Exceptional Baby, New York: Panethon Books, 1980

Johnson, Vicki and Werner, Roberta A Step by Step Learning Guide for Retarded Infants and Children, Syracuse: Syracuse University Press, 1975

Rudolph, J. Manual for the Assessment of a Deaf-Blind Multiply Handicapped Child, Midwest Regional Center, November 1978

Sparling, Joseph and Lewis, Isabelle Learning Games for the First Three Years of Life, New York: Walker and Company 1979

Stillman, Robert Assessment of Deaf-Blind Children: The Callier-Azusa Scale, Reston, Virgina: Council for Exceptional Children, 1974

Watrin, Rita and Furfey, Paul Learning Activities for the Young Preschool Child, Litton Educational Publishing, 1978